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PCT

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(REV. 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

533 Rec'd PCT/PTO 24 AUG 2001

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

99/07049 WO/US

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/914458

INTERNATIONAL APPLICATION NO.

PCT/EP00/01565

INTERNATIONAL FILING DATE

February 25, 2000

PRIORITY DATE CLAIMED

February 26, 1999

TITLE OF INVENTION

METHOD AND CLEANING FLUID FOR THE WET CLEANING OF OBJECTS

APPLICANT(S) FOR DO/EO/US

Oskar K. Wack.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☐ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☐ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☐ Other items or information:

"Express Mail" Mailing Label Number EL 436 586 725 USDate of Deposit: 8/24/01

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Rosalie A. Centeno, Secretary

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

09/914458

INTERNATIONAL APPLICATION NO

PCT/EP00/01565

ATTORNEY'S DOCKET NUMBER
99/07049 WOJUS21. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):**Neither international preliminary examination fee (37 CFR 1.482)
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO
and International Search Report not prepared by the EPO or JPO. \$1000.00International preliminary examination fee (37 CFR 1.482) not paid to
USPTO but International Search Report prepared by the EPO or JPO \$860.00International preliminary examination fee (37 CFR 1.482) not paid to USPTO
but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$710.00International preliminary examination fee (37 CFR 1.482) paid to USPTO
but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$690.00International preliminary examination fee (37 CFR 1.482) paid to USPTO
and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00**ENTER APPROPRIATE BASIC FEE AMOUNT =****CALCULATIONS PTO USE ONLY**

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$

CLAIMS**NUMBER FILED****NUMBER EXTRA****RATE**

\$

Total claims

11 - 20 =

0

x \$18.00

\$

Independent claims

2 - 3 =

0

x \$80.00

\$

MULTIPLE DEPENDENT CLAIM(S) (if applicable)

+ \$270.00

\$

TOTAL OF ABOVE CALCULATIONS =

\$ 860.00

☒ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above
are reduced by 1/2.

\$

430.00

SUBTOTAL =

\$ 430.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$

TOTAL NATIONAL FEE =

\$ 430.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

\$

TOTAL FEES ENCLOSED =

\$ 430.00

Amount to be
refunded:

\$

charged:

\$

a. ☒ A check in the amount of \$ 430.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.
A duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 02-1653. A duplicate copy of this sheet is enclosed.d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. Credit card
information should not be included on this form. Provide credit card information and authorization on PTO-2038.**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR
1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

ROBERT W. BECKER,
11896 N. HIGHWAY 14 SUITE B
TIJERAS, NEW MEXICO 87059

SIGNATURE

Robert W. Becker

NAME

26.255

REGISTRATION NUMBER

518 Rec'd PCT/PTO 24 AUG 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Date of Deposit August 24, 2001

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addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Rosalie A. Centeno
Rosalie A. Centeno, Secretary

In the Application of Oskar Wack

Ser.No.: Not Yet Known (Based on PCT/EP00/01565 filed February 25, 2000 and
German priority document 199 08 434.3 filed February 26, 1999)

For: METHOD AND CLEANING FLUID FOR THE WET CLEANING OF OBJECTS

Filed on: August 24, 2001

Assistant Commissioner for Patents

Washington, DC 20231

PRELIMINARY AMENDMENT ACCOMPANYING PCT NATIONAL STAGE APPLICATION

Sir:

Prior to examination, please amend the above-identified application as follows.

IN THE CLAIMS:

Please amend claims 3 and 4 to depend from claim 1 and claims 10 and 11 to depend from
claim 5.

REMARKS

Claims 1 - 11 are pending in the application.

The application in its amended state is believed to be in condition for allowance. However,
should the Examiner have any comments or suggestions, or wish to discuss the merits of the

09/914458

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application, the undersigned would very much welcome a telephone call in order to expedite placement of the application into condition for allowance.

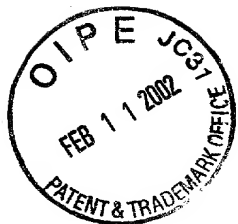
Respectfully submitted,



Robert W. Becker, Reg. No. 26,255
for Applicant(s)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

"Express Mail" Mailing Label Number: EV 021936738 US

Date of Deposit February 11, 2002 (Monday)

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Mary Ann Copas, Secretary

In the Application of Dr. Oskar Wack

Ser. No.: 09/914,458

For: METHOD AND CLEANING FLUID FOR THE WET CLEANING OF OBJECTS

Filed on: August 24, 2001

Assistant Commissioner for Patents

Washington, DC 20231

PRELIMINARY AMENDMENT ACCOMPANYING PCT NATIONAL STAGE APPLICATION

Sir:

Prior to examination, please amend the above-identified application as follows.

IN THE SPECIFICATION:

On page 1, immediately after the title, please insert the following heading:

--Background of the Invention--;

Page 1, line 17, please insert the following heading:

--Summary of the Invention--.

On page 5, line 14, please insert the following heading:

--Description of Preferred Embodiments--.

On page 8, at the bottom of the page, please insert the following paragraphs:

--The specification incorporates by reference the disclosure of German priority document

199 08 434.3 filed 26 February 1999 and International priority document PCT/EP00/0565 filed 25

February , 2000.

The present invention is, of course, in no way restricted to the specific disclosure of the specification and drawings, but also encompasses any modifications within the scope of the appended claims.--

IN THE CLAIMS:

Please cancel claims 1 - 11, and replace them with the attached claims 12-24.

REMARKS

Claims 12 - 24 are pending in the application.

Appropriate headings have been added to the specification, and claims from the literal translation have been replaced by claims drafted in conformity with U.S. Patent practice.

The application in its amended state is believed to be in condition for allowance. However, should the Examiner have any comments or suggestions, or wish to discuss the merits of the application, the undersigned would very much welcome a telephone call in order to expedite placement of the application into condition for allowance.

Respectfully submitted,



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RWB:els

WHAT I CLAIM IS:

12. A method for wet cleaning objects, including the step of:

bringing an object into intense contact with a cleaning fluid that comprises water and an organic solvent having good solubility properties for dirt that is to be removed, wherein within certain concentration and temperature ranges said cleaning fluid forms a solution, and outside this range has a miscibility gap, and wherein for a wet cleaning said cleaning fluid is present in the miscibility gap phase, wherein said solvent, at a temperature that prevails during said wet cleaning, is at a concentration that is greater than a concentration at which, starting with water, a miscibility gap occurs when said solvent is added to said water.

13. A method according to claim 12, wherein said organic solvent is present in a concentration of at least 5% by weight.

14. A method according to claim 13, wherein said organic solvent is present in a concentration of at least 10% by weight.

15. A method according to claim 13, wherein said wet cleaning is undertaken under the effect of ultrasound.

16. A method according to claim 13, wherein wet cleaning is effected at a temperature between 20° and 50° C.

17. A cleaning fluid for wet cleaning objects, comprising:
water, and

an organic solvent having good solubility properties for dirt that is to be removed, wherein within certain concentration and temperature ranges said cleaning fluid forms a solution, and outside this range has a miscibility gap, and wherein for a wet cleaning said cleaning fluid is present in the miscibility gap phase, wherein said solvent, at a temperature that prevails during said wet cleaning, is at a concentration that is greater than a concentration at which, starting with water, a miscibility gap occurs when said solvent is added to said water.

18. A cleaning fluid according to claim 17, wherein said organic solvent is propylene-glycol-ether.

19. A cleaning fluid according to claim 18, wherein said propylene-glycol-ether is present in a concentration between 10 and 30% by weight.

20. A cleaning fluid according to claim 19, wherein said propylene-glycol-ether is present in a concentration between 10 and 20% by weight.

21. A cleaning fluid according to claim 17, wherein said organic solvent is an ether-acetate.

22. A cleaning fluid according to claim 21, wherein said ether-acetate is present in a concentration between 5 and 30% by weight.

23. A cleaning fluid according to claim 22, wherein said ether-acetate is present in a concentration between 5 and 15% by weight.



METHOD AND CLEANING FLUID FOR THE WET CLEANING OF
OBJECTS

The invention relates to a method and cleaning fluid for the wet cleaning of objects.

5

During the wet cleaning, soiled objects are normally brought into contact with a highly concentrated, organic solvent, which is adjusted based on the dirt to be removed. A characteristic of this cleaning process is that a relatively large amount of solvent is used and on account of its impurities, must be restored. In addition, particularly when working at greater than room temperatures, fire is a danger, since the solvent fumes usually are easily flammable. With a succession of solvents, it cannot be ruled out that the residue of the solvents remains on the surface of the cleaned object, so that the cleaning must be followed by one or more rinsing processes in order to completely remove the solvent residue.

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The object of the present invention is to provide a method and cleaning fluid that do not have the described problems.

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The portions of the inventive object relating to the method are solved with the features of the independent claim.

Surprisingly, it turned out that upon use of a cleaning fluid made up of water and at least one solvent that forms a miscibility gap with water, and when working with a solvent concentration at which the cleaning fluid is in a state of the miscibility gap, the same or even a better cleaning efficiency can be achieved as when a solvent is used exclusively for cleaning, i.e., when the concentration of the solvent is 100%. With the inventive method, the concentration of the solvent can be substantially reduced and lies in the range of 10 % to 20 %, so that the use of the solvent is substantially reduced. Also, with increased temperatures, the vapors produced from the cleaning fluid have such a high water content that no danger of flammability exists. An additional advantage of the inventive method is that the dirt to be removed is deposited on the surface of the aqueous phase of the cleaning fluid, where it can be taken off, so that the cleaning fluid, or more specifically, the solvent, only must be minimally restored. Since the cleaning fluid predominantly contains water, the cleaning fluid not only efficiently removes organic dirt, but also inorganic dirt.

Typical types of dirt on which the inventive method is useable are oil, fat, fluids with resin, pigments, dust, non-hardened epoxy materials, for example adhesives, residue from lapping or polishing paste, residue from machining fluids such as stamping oil, boring and cutting

emulsions, and so on. The inventive method is particularly suitable for cleaning printed circuit boards, templates, and metal parts of various geometries and of various metals. Typical organic solvents are propylene-glycol-ether, esters, ketones with limited water solubility, and so on.

The utilized organic solvent is soluble in water within certain mixture ratio ranges, that is, it forms a clear solution. In a mostly temperature-dependent concentration range, a miscibility gap is present, which generally makes the cleaning fluid cloudy, or forms an emulsion of the type solvent in water. The mixing ratio of the cleaning fluid is preferably adjusted such that at the cleaning fluid temperature, one operates specifically in the range of the miscibility gap. Thus, the danger does not exist that the cleaning fluid passes into the actual solution state.

Upon a mixing of dipropylene-glycol-n-propyl-ether, for example, the miscibility gap begins as soon as more than 5% of the solvent is added to the water at a temperature of approximately 20° C. For a good cleaning result, it is advantageous to work with at least 10% dipropylene-glycol-n-propyl-ether in water.

Preferably, a certain, minimum concentration for organic solvents is employed, which is at 5 and preferably 10% by weight.

Advantageously, during the wet cleaning, the fluid is put into intensive movement, for example by means of ultrasound. Thus, on the one hand, both phases of the cleaning fluid are thoroughly mixed and on the other hand, a massive, mechanical interaction takes place between the cleaning fluid and the object to be cleaned. In this manner, surprisingly, proportionally low excitation output of the ultrasound vibration is sufficient, as are needed with aqueous cleaning fluids, in order also to efficiently remove the types of dirt that commonly are removed with organic solvents and high ultrasound vibrations.

The cleaning temperature preferably lies in a range of between 20 and 50° C. Thus, also temperature-sensitive objects can also be cleaned trouble-free. Not much heat energy is needed. The prevailing vapor pressure is small, whereby the management of the process is simple and the environment is minimally burdened.

Claim 5 is directed to the basic composition of the inventive cleaning fluid. This cleaning fluid differs from common aqueous cleaning fluids in that, as previously explained, the inventive cleaning fluid also

removes organic contaminants. The inventive cleaning fluid differs from common, organic solvent-based cleaning fluid in that it also cleans types of dirt that are removable with water.

5 Advantageously, the concentration of the organic solvent averages at least 5 %, preferably at least 10 %, by weight. Already with this concentration, a cleaning effect is generally achieved, which is similarly good or even better than the cleaning effect achieved with the plain solvent, however, with the advantage that also water-soluble dirt is
10 dislodged. A further advantage is that upon working with a cloudy solution with the above-described properties, the dislodged dirt is displaced onto the surface of the aqueous phase of the fluid and thus can be easily removed, as previously mentioned.

15 With one advantageous composition, the organic solvent ispropylene-glycol-ether that preferably has a concentration between 10 and 30% by weight, most preferably between 10 and 20% by weight. Such a cleaning fluid is especially suited advantageously for cleaning various contaminants such as oils, fats, resins, adhesives, and so forth.

20 With another advantageous composition, the solvent is or contains ether-acetate, for example glycol-ether-acetate, in a concentration

between 5 and 30% by weight, by way of example, preferably between 5 and 15% by weight. Such a cleaning fluid is especially suited for removing unhardened epoxy materials and adhesives. For the propylene-glycol-ether, dipropylene-glycol-n-propyl-ether or dipropylene-glycol-n-butyl-ether can be used, by way of example.

The inventive cleaning fluid can be a simple two-phase system made from water and an organic solvent. Suitable solvents are, for example, glycol-ether, ether-acetate, butyl-acetate, esters, such as malonic acid-ester, lactic acid-ester, ketones, such as acetone, isobutyl-ketones, and so forth.

A multitude of organic solvents are available.

The inventive cleaning fluid can contain a good, water-soluble organic solvent, in which a poorly water-soluble solvent is dissolved, which in this manner is introduced into the water.

For this purpose, for example, a mixture of 80% by weight of a good water-soluble solvent and 20% by weight of a poorly water-soluble or a water-insoluble solvent is prepared and then added to water in a quantity of 10 to 20% by weight.

A glycol-ether, for example propylene-glycol-mono-methyl-ether, dipropylene-glycol-mono-methyl-ether, or tripropylene-glycol-mono-methyl-ether serves as a good water-soluble solvent. As a poorly water-soluble solvent, propylene-glycol-ether is used, by way of example, such as propylene-glycol-mono-butyl-ether, dipropylene-glycol-mono-butyl-ether, tripropylene-glycol-mono-butyl-ether, or propylene-glycol-mono-methyl-ether-acetate, propylene-glycol-diacetate, dipropylene-glycol-dimethyl-ether. Also, terpene and higher alcohols can be used.

In conclusion, the present invention makes possible an outstandingly effective cleaning of complexly contaminated objects with minimal addition of solvents, minimal use of solvents, and minimal environmental burden. Surprisingly, with smaller solvent concentrations, outstandingly good cleaning effects are achieved, for example, adhesives, in particular epoxy adhesive, can be removed with an aqueous cleaning fluid that comprises up to 90% water.

The cleaning fluid used for the inventive method need not necessarily be a cloudy emulsion. The emulsion can also be transparent, whereby the difference between the two emulsions lies in their respective

particle size. In milky-cloudy emulsions, the particles or drops of the organic solvent dispersed in the water generally have a diameter of approximately 0.1 μm , while in transparent emulsions, the particle diameter lies well under 0.1 μm . However, larger particle diameters, that is, cloudy emulsions, are advantageous

It is to be understood that the inventive cleaning fluid can be provided with further properties, for example emulsifiers, corrosion inhibitors, and so forth. In the inventive cleaning fluid, the water content generally is substantially higher than the content of the organic solvent, so that the inner emulsifying phase is formed by the solvent and the outer, cohesive phase is formed by the water. Thus, one speaks of an organic-in-water or solvent-in-water emulsion. For determining whether it is a matter of such an emulsion, reference is made to Römpps Chemical Lexicon ("Chemielexikon"), 8th edition, Franckh'sche Publishing, Stuttgart, 1981, page 1128.

Patent Claims

1. Method for the wet cleaning of objects, in which method the objects to be cleaned are brought into intensive contact with a cleaning fluid which has an organic solvent with good solubility properties for the dirt to be removed,

characterized in that,

a cleaning fluid is used which forms a solution within certain concentration and temperature ranges, and outside of this range, has a miscibility gap, whereby the cleaning fluid for the wet cleaning is present in the state of the miscibility gap and contains the solvent in a concentration that at the temperature prevailing at the wet cleaning, lies above that concentration at which, starting from water, upon addition of the solvent, the miscibility gap sets in.

2. Method according to claim 1, characterized in that the organic solvent is present in a concentration of at least 5% by weight, preferably at least 10% by weight.

3. Method according to claim 1 or 2, that cleaning is undertaken under the effect of ultrasound.

4. Method according to one of the claims 1 through 3, characterized in that the temperature of the wet cleaning lies between 20° and 50° C.

5. Cleaning fluid for the wet cleaning of objects, with a cleaning fluid having an organic solvent with good solubility properties for the dirt to be removed,

characterized in that

5 the cleaning fluid forms a solution within certain concentration and temperature ranges, and outside of these ranges, has a miscibility gap, whereby the cleaning fluid is present for the wet cleaning in the state of the miscibility gap and contains the solvent in a concentration which at the temperature that prevails at the wet cleaning, lies above that
10 concentration at which, starting from water, upon addition of the solvent, the miscibility gap sets in.

6. Cleaning fluid according to claim 5, characterized in that the organic solvent is propylene-glycol-ether.

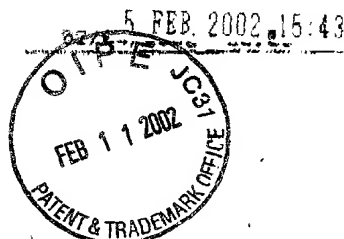
7. Cleaning fluid according to claim 6, characterized in that the
15 concentration of the propylene-glycol-ether lies between 10 and 30% by weight, preferably between 10 and 20% by weight.

8. Cleaning fluid according to claim 5, characterized in that the organic solvent contains an ether-acetate.

9. Cleaning fluid according to claim 8, characterized in that the
20 ether-acetate has a concentration between 5 and 30% by weight, preferably between 5 and 15% by weight.

10. Cleaning fluid according to one of the claims 5 through 9, characterized in that the cleaning fluid comprises water and an organic solvent.

5 11. Cleaning fluid according to one of the claims 5 through 9, characterized in that the cleaning fluid comprises water and at least two organic solvents, whereby a first organic solvent has good water-solubility and a second organic solvent has poor water solubility and can be dissolved well in the first organic solvent.



5 FEB. 2002 15:43 5052863 BLUMBACH KRAMER & PARTNER
PATENTANWALTE M.4

NR. 1258 PAKS 433

Attorney Docket No.
00/07040 WO US

COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought of the invention entitled:

METHOD AND CLEANING FLUID FOR THE WET CLEANING OF OBJECTS

the specification of which

is attached hereto;

XX was filed on August 24, 2001 as U. S. Application Serial No. 00/914,458

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information known by me to be material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):

(Number)	(Country)	(Day/Month/Year Filed)	Priority Claimed:
189 08434.3	Germany	26 February 1999	<u>X</u> Yes <u> </u> No

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

(Application Number)

(Filing Date)

I hereby appoint attorney Robert W. Becker, Reg. No. 26,255, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. Address all telephone calls to (505) 288-3511. Address all correspondence to ROBERT W. BECKER & ASSOCIATES, 707 Highway 86 East, Suite 8, Tijeras, New Mexico 87059.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: Dr. D. K. Wack

Inventor's signature [Signature]

Residence: Bunsenstr. 6, D-45053 Ingoisstadt, Germany

Citizenship: German

Post Office Address: same as above

Date: FEB 5, 2002

DEX

Empfangszeit 5. Feb. 17:00